DOCUMENT RESUME

ED 431 557 PS 027 765

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TITLE The Relations among Home-Literacy Factors, Language and Early-Literacy Skills, and Reading Acquisition.
SPONS AGENCY Social Sciences and Humanities Research Council of Canada, Ottawa (Ontario).; Carleton Univ., Ottawa (Ontario).
PUB DATE 1999-03-02
NOTE 17p.; Paper presented at the Biennial Meeting of the Society for Research in Child Development (Albuquerque, NM, April 15-18, 1999).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Elementary School Students; *Emergent Literacy; Family Environment; Foreign Countries; Language Skills; Longitudinal Studies; *Parent Influence; *Parents as Teachers; Primary Education; Reading Achievement; Reading Skills; *Story Reading; Theories; Writing Achievement; Writing Skills

ABSTRACT

Researchers, parents, and teachers have suggested that the home environment is a likely source of experiences that can enhance the development of oral language and early literacy skills. This longitudinal study examined relations among home literacy factors, subsequent language and early literacy skills, and reading acquisition. Assessments included measures of vocabulary, listening comprehension, phonological awareness, alphabet knowledge, emergent spelling, single word reading, and standardized reading achievement, as well as parent questionnaires. A theoretically-based model of the relations among home literacy factors, early oral language/literacy skills, and end of Grade 1 reading was tested with data from the first cohort of children tested. The fit of the model was examined with data from the second cohort tested. The model hypothesized that home literacy experiences directly affect language and early literacy skills. The study found that parents' knowledge of children's literature was related to children's oral language skills, and the amount of teaching about reading and writing reported by parents was related to children's acquisition of early literacy skills. The impact of home literacy factors was mediated through language and early-literacy skills in that storybook reading and parent teaching did not predict significant unique variance in reading at the end of Grade 1. The findings support a distinction between storybook reading and parent teaching, with different links to early skills and, ultimately, to reading acquisition. (Contains 27 references.) (Author/KB)

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ED 431 557

The Relations among Home-Literacy Factors, Language and Early-literacy Skills, and Reading Acquisition

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1999 March 2

In M. A. Evans (Chair), *Home literacy practices: Precursors, dimensions, and outcomes in the early school years*. Symposium presented at the biennial meetings of the *Society for Research in Child Development*, Albuquerque, NM.

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Acknowledgements [1]

This research was supported by a grant from the Social Sciences and Humanities Research Council of Canada to M. Sénéchal and J. LeFevre. Initial work for this study was funded by a GR6 grant from Carleton University, an Elva Knight Research Award from the International Reading Association, and a grant from Heritage Canada (to M. Sénéchal).

PS 027765

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SUMMARY

Children start Grade 1 with a variety of early language and literacy skills that may be important for their acquisition of reading. Researchers, parents, and teachers have suggested that the home environment is a likely source of experiences that can enhance the development of oral language and early-literacy skills. In this longitudinal study, we examined the relations among home literacy factors (i.e., experiences occurring prior to formal instruction), subsequent language and early-literacy skills, and reading acquisition. We assessed children's language with measures of vocabulary (PPVT-R), listening comprehension, and phonological awareness. Early-literacy measures included Clay's "concepts about print" task, alphabet knowledge, emergent spelling, and single word reading. Reading at the end of grades 1 and 3 was assessed with standardized tests. Parents completed a questionnaire about the children's home literacy environment, as well as two checklist measures designed to index storybook knowledge.

In this study, we are following two cohorts of children. In the first cohort, children were assessed at the beginning of Grade 1, the end of Grade 1, and the end of Grade 3. In the second cohort, children were assessed at the beginning of kindergarten, at the beginning of Grade 1, and at the end of Grade 1. The second cohort will also be assessed at the end of Grade 3. We developed a theoretically-based model of the relations among home literacy factors, early oral language and literacy skills, and end of Grade 1 reading that was tested with the data from the first cohort (n=47). In this talk, we examine the fit of the model to the data from the second cohort (n=97).

In our model, we hypothesized that home literacy experiences will have a direct impact on language and early-literacy skills (see Figure 1). We used hierarchical regressions to test the relations shown in Figure 1, controlling for children's age and kindergarten experience, parents' own literacy level, children's analytic intelligence and either oral language or early literacy. (Note that storybook reading and parents' reports of teaching reading and printing were unrelated). As shown in Table 1, parents' knowledge of children's literature was related to children's oral language skills, whereas the amount of teaching about reading and writing reported by parents was related to children's acquisition of early-literacy skills. Furthermore, the impact of home literacy factors was mediated through the language and early-literacy skills in that storybook reading and parent teaching did not predict significant unique variance in reading at the end of Grade 1. Thus, the model fit the data from the second cohort very well.

In conclusion, our results provide support for a distinction between two different aspects of home literacy experiences in that such experiences appear to play different roles in the development of oral language and early literacy. Hence, home literacy experiences should not be considered a unitary construct. Rather, storybook reading and parent teaching may be independent experiences, with different links to early skills and, ultimately, to reading acquisition.

Introduction

Children enter Grade 1 with a variety of skills that may facilitate their acquisition of reading. In particular, children's oral-language skills (e.g., vocabulary, phoneme awareness) and early-literacy skills (e.g., understanding print concepts, knowing the names or sounds of letters) have been associated with later reading achievement. Specifying where and how children acquire these skills is important for the design of appropriate curricula and for the development of early intervention programs. Researchers, parents, and teachers have suggested that the home environment is a likely source of experiences that can enhance the development of oral and written language. In this presentation, I will describe the results of a longitudinal study in which we examined the relations among home literacy experiences, oral-language and early-literacy skills, and reading acquisition.

We originally conceptualized the longitudinal work around three questions.

- What variables might best capture salient aspects of the home literacy environment?
- How are the relevant home literacy variables related to children's oral-language and early-literacy skills that precede reading instruction in Grade 1?
- Do home literacy experiences have long-term implications for reading achievement?

I will provide some background for our reasoning about these issues, and review the relevant findings from the first cohort of this longitudinal project, as reported in Sénéchal, LeFevre, Thomas, and Daley (1998) and by Sénéchal and LeFevre (1998).

Assessing Home Literacy Experiences

According to Teale and Sulzby (1986), the home environment can be the source of three broad categories of literacy experiences: (a) experiences in which children interact with adults in writing and reading situations; (b) experiences in which children explore print on their own; and (c) experiences in which children observe adults modeling literate behaviors (e.g., reading the newspaper). In the present paper, we focused on the first category of literacy experiences by examining two types of parent-child activities: reading storybooks and instruction about reading and writing. We asked whether parents who spend time reading to their children might also spend time teaching them to read and write.

Storybook reading. Storybook reading has received the most attention within the array of parent-child literacy activities that might enhance oral-language and early-literacy skills (Bus, van IJzendoorn, & Pellegrini, 1995; Scarborough & Dobrich, 1994b). The presumed benefits of storybook reading are numerous, including the acquisition of world knowledge and novel vocabulary, increased familiarity with the syntax of written language, and heightened awareness of written letters and words (reviewed by Mason & Allen, 1986). Although there is evidence that both the quality and quantity of storybook reading can influence language development (e.g., Sénéchal, Thomas, & Monker, 1995; Whitehurst et al., 1988), most research has been focused on the frequency of storybook reading activities. In recent reviews of this literature, the association between the frequency of storybook reading at home and various child outcomes was modest at best (Bus et al., 1995; Scarborough & Dobrich, 1994b) and may reflect the general influence of a strong orientation to literacy in the home and not the specific influence of storybook reading. Because of the uncertainty surrounding the best way to assess reading frequency (see Sénéchal et

al., 1996 for discussion), we developed an alternative measure of storybook exposure to use in this longitudinal project. As described in Sénéchal et al. (1996; 1998), we asked parents to indicate the authors and titles of children's books from lists containing plausible foils. The resulting measure of storybook exposure is consistently correlated with children's vocabulary scores (Evans, 1998; Sénéchal et al., 1996; 1998). In contrast, self-report measures of reading frequency (i.e., how often do you read to your child in a typical week) are neither consistent nor reliable predictors of children's language (Sénéchal et al., 1996; 1998). Hence, throughout the longitudinal project, we defined storybook exposure as performance by the child's parents on the checklist measures.

Parental involvement in early literacy. Given the relatively modest relations between storybook reading and the development of literacy skills, researchers have suggested that models of home literacy experiences should include the influence of reading-related activities other than storybook reading (e.g., Dunning, Mason, & Stewart, 1994; Scarborough & Dobrich, 1994a). In the present research, we identified the frequency with which parents provide direct support for learning about literacy as a potentially important home literacy experience because there is evidence that parental involvement in children's reading is positively related to reading achievement in the early grades.

In most of the studies on parental involvement, parents simply listened to their children read aloud, because the children had received reading instruction in school (e.g., Hewison, 1988; Hewison & Tizard, 1980). For younger children, who cannot yet read, direct instruction of early-literacy skills by parents may also contribute to the acquisition of these skills. For example, Jackson, Donaldson, and Cleland (1988) found that 95% of parents of precocious readers in their sample reported having identified letter sounds for their young children. Similarly, Durkin (1966) observed that 67% of parents of precocious readers in her sample reported having provided instruction in skills such as naming letters. These findings are consistent with the hypothesis that the support parents provide for learning about literacy contributes to the development of reading, a possibility that has not been thoroughly evaluated.

To develop accurate models of home literacy environment, it is necessary to determine whether parents who read storybooks frequently also teach their children about reading and writing. In studies in which both kinds of activity were assessed, the contributions of parent teaching and storybook reading were not examined separately. For example, in both Jackson et al. (1988) and Durkin (1966), parents of precocious readers reported reading storybooks frequently and most also reported teaching about reading. Although the Jackson et al. and Durkin studies were done with samples of precocious readers, their results suggest that parent teaching and storybook reading may be highly correlated: Parents who spend time reading to their children may also spend time teaching them to read and write. Before we started the longitudinal study, little evidence was available on the relation between these two aspects of home literacy experiences. In Sénéchal et al. (1998) however, storybook exposure and parent teaching were uncorrelated.

Relations among Home Literacy Experiences and Language Skills

The second question concerned the nature of the relations among storybook exposure and parent teaching and children's oral-language and early-literacy skills. Determining the links between specific home literacy experiences and specific child outcomes prior to formal instruction

is essential to the development of theoretical models of the role of home literacy in the development of children's skills. In time, such models could guide the design of early intervention programs for young children and their parents.

Determining whether storybook reading and parent teaching have similar relations to oral language and early literacy has important instructional implications. Children may learn both oral-language and early-literacy skills from exposure to storybooks and from parent teaching. Conversely, children may learn oral-language skills such as vocabulary from listening to storybooks, but may need direct instruction to learn print-specific skills such as recognizing the letters of the alphabet.

Long-term Implications of Home Literacy Experiences

The third question we addressed is whether home literacy experiences have long term implications for reading achievement. Bus et al. (1995) conducted a meta-analysis of the literature and concluded that there was a moderate positive association between the frequency of storybook reading and later reading achievement. However, a theoretical model elaborated by Whitehurst et al. (1994) led to the prediction that the association between early home literacy experiences and later reading achievement was mediated through early oral-language and early-literacy skills. The present paper provided an empirical test of this theoretical prediction. Specifically, we tested whether home literacy experiences measured early in kindergarten predicted variance in reading skill at the end of Grade 1, once we accounted for early oral-language and early-literacy skills measured at the beginning of Grade 1. The study was designed so that we also followed the children to the end of Grade 3, in order to test whether home literacy experiences measured early in Grade 1 predicted additional variance in reading skill at the end of Grade 3. We reported on the Grade 3 results for the first cohort in Sénéchal and LeFevre (1998). Grade 3 results for the second cohort will be collected this spring.

Method

Participants

Two cohorts of children and their parents participated, a Grade 1 cohort (N = 58) and a Kindergarten cohort (N = 110). Children in the Grade 1 cohort were assessed at the beginning of Grade 1, the end of Grade 1 (N=47), and the end of Grade 3. Children in the Kindergarten cohort were assessed at the beginning of kindergarten, at the beginning of Grade 1, and at the end of Grade 1 (N=97). The Kindergarten cohort will also be assessed at the end of Grade 3. Home literacy measures were collected only once, either at the beginning of Grade 1 (Grade 1 cohort) or at the beginning of Kindergarten (Kindergarten cohort). All children came from English-speaking homes, most were Caucasian, and the majority came from middle- and upper middle-class families.

In this presentation, I will focus on the data for the Kindergarten cohort. The main outcome variable is reading measured at the end of Grade 1. Importantly, this cohort provides a close replication of the results we reported for the Grade 1 cohort (Sénéchal et al., 1998) but with a larger sample and with home literacy measures from the beginning of kindergarten, instead of from the beginning of Grade 1.

Child Literacy Experiences

Sénéchal et al. (1996) have shown that parents' reports of reading frequency and of other book reading activities are not robust predictors of children's literacy outcomes (see also Evans, 1998; Shaw, 1998). Consequently, Sénéchal et al. developed alternative measures of storybook exposure to address the methodological problems with self-report measures of storybook reading. Parents were given lists of authors and titles of children's books and asked to indicate which they recognized. Performance on the lists was interpreted as reflecting parents' relative exposure to children's literature, presumably as a function of the parent reading to the child. Sénéchal et al. (1996) showed convincingly that these indirect measures of storybook exposure had criterion validity, in that the checklists predicted children's language better than did traditional self-report measures of storybook reading. Furthermore, the checklists were simple to administer, reliable, unlikely to be subject to social-desirability biases, and did not require parents to interpret the meaning of questions about storybook reading.

In the present study, parent teaching was assessed by asking parents about the frequency of teaching behaviors. Although Sénéchal et al. (1996) and others have criticized the use of self-reports as indices of parents' behavior, no alternative measures for parent teaching were available in the literature. The few studies in which data were collected on parents' support for learning about literacy relied on one or very few questions addressed to parents, yielded little information about the ideal format for asking about parental support, and did not provide information about the reliability and validity of such questions. Examination of the literature also suggested that parents' views about teaching may be less subject to social-desirability biases than their views of storybook reading.

In the present study, we asked parents to indicate on five-point scales the frequency with which they (a) taught their child to read words and (b) taught their child to print words in a typical week (1 = never; 2 = seldom; 3 = sometimes; 4 = often; 5 = very often). We averaged these two questions for the measure of parent teaching. The inter-item reliability of this measure was .79.

Other researchers have successfully asked the parents of young children about their provision of direct teaching or instruction (Crain-Thoreson & Dale, 1992). Nevertheless, a pilot test was conducted to assess whether parents could answer these questions and whether parents' responses would be distributed normally. We asked 22 parents to complete the parent questionnaire. The two questions about teaching behaviors were answered by all parents, and parents used the entire range of responses. In addition to this initial test, we asked 7 parents to describe the activities during which they taught their child about reading and printing words. Parents gave a variety of responses; for example, teaching could occur during storybook reading, while having children sign and copy messages in thank-you cards, or while playing with plastic letters. These responses provided some information about the richness of literacy activities that occur in middle-class homes. We did not ask parents in the present study to describe how and where they taught their children about reading and writing because our focus was on the frequency of occurrence of these teaching behaviors. We also wanted to keep the parent questionnaire a reasonable length. Thus, the present study represented an initial step in understanding the importance of parent teaching in the development of oral-language and early-literacy skills.

Child Oral-Language Measures

Vocabulary. Vocabulary was assessed with the Peabody Picture Vocabulary Test-Revised (Dunn & Dunn, 1981).

Listening comprehension. Listening comprehension was assessed with the Listening to Stories subtest of the Stanford Early School Achievement Test (Psychological Corporation, 1989).

Phonological awareness. The sound categorization task taken from the Sounds and Letters subtest of the Stanford Early School Achievement Test (Psychological Corporation, 1989) was used to assess phoneme awareness. In one subtask, children were required to identify onsets and rimes. For example, children were asked to select the picture that started with the same sound as moth from an array of pictures that included hammer, thimble, and milk or that ended with the same rime as moon from an array of pictures that included stool, spoon, and pot. In another subtask, children heard a word and then were asked to tell the experimenter how that word would sound if a specific sound was deleted (e.g., pink without the "p"; flying with the "f").

Child Early-literacy Measures

Print concepts. To assess knowledge of print concepts, we used parts of Clay's (1979) Concepts About Print Test. We selected questions from the task that could be answered by children who did not know how to read words (i.e., questions 1 to 9 and 11). For example, children were asked to identify the front of the book and to point to the location where the experimenter should start to read.

Alphabet knowledge. Children were shown 15 letters, one at a time, in a random order, and asked to identify them.

Invented spelling. Children were asked to print 10 words selected to assess children's spelling skills. The words were bed, name, fish, boat, color, angry, people, rough, chain, and lady. Each response was scored on a 4-point scale (see Mann, Tobin, & Wilson, 1987).

Decoding. Children were asked to read two practice words and five target words. The practice words consisted of the child's name and the word mom. The five target words were all consonant-vowel-consonant (CVC) words. They were: dog, cat, bed, sun, and hit. Children received one point for each letter sound correctly decoded and one point for blending the sounds correctly (maximum 20).

Grade 1 Reading Measure

To assess word reading at the end of Grade 1, children in the second cohort were administered the Letter-Word Identification subtest and the Passage Comprehension subtest of the Woodcock-Johnson Psycho-educational Battery-Revised (Woodcock & Johnson, 1989).

The first cohort of children were given the Reading Vocabulary Subtest of the Gates-MacGinitie Reading Test (Level A, Form 3, Canadian edition; MacGinitie & MacGinitie, 1992).

Control Variables

Child analytic intelligence. Children's analytic intelligence was assessed using the Animal House Subtest of the WPPSI-R (Weschler, 1989).

Parents' exposure to print. The extent to which parents had been exposed to adult reading materials was used as an indicator of the literacy level of the parent. To assess parental print exposure, we used a Canadian version of the Author Recognition Test (Stanovich & Cunningham, 1992) that was developed by Sénéchal et al. (1996). In this test, parents identified the names of real authors of adults' books they recognized from a list containing foils.

Kindergarten level. Parents completed the home literacy measures only once, at the onset of the study. Thus, for approximately half of the children, home literacy experiences were assessed at the beginning of 4-year-old kindergarten and for the other half, at the beginning of 5-year-old kindergarten (junior and senior kindergarten, respectively).

Procedure

Parents completed the checklists and questionnaire at home at the beginning of the study. We asked that the parent who read to the child most frequently complete the checklists and questionnaire. The kindergarten-cohort children completed the oral-language and early-literacy measures in the fall of kindergarten and Grade 1, and were tested for reading at the end of Grade 1. The Grade-1 cohort children were tested for oral language and early literacy at the beginning of Grade 1 and were tested for reading at the end of Grades 1 and 3.

Results and Discussion

Parents reported a high frequency of home literacy experiences. On average, parents reported having started reading storybooks when their child was nine months of age, that storybook reading occurred frequently in the home, that children had between 61 and 80 children's books in the home, and that children sometimes visited the library. Parents also reported that joint book reading was often initiated by the children themselves which we took to indicate that children were interested in book reading. Finally, parents reported that they sometimes taught their children how to read and print words. The scores for teaching to read and teaching to print were moderately correlated ($r = .60$). These scores were averaged to produce the parent teaching measure used in the following analyses.

The descriptive statistics for the child measures revealed that at the beginning of Grade 1, children were able to name many letters of the alphabet (average of 11/15) and had good conceptual knowledge about print, but could not yet decode all five CVC words. The children also demonstrated some spelling knowledge in that the majority of spelling attempts were preconventional in nature.

Question 1: (a) What is the relation between storybook reading and parent teaching?

The first question pertained to the relation between the two kinds of home literacy experiences studied, namely, parent-child storybook reading and parent-reported teaching about reading and writing words. We found no correlation between storybook exposure and parent-reported teaching ($r = .12$). That is, parents who frequently read storybooks did not necessarily report teaching their child about reading and writing. This finding contradicts the hypothesis that parent teaching and storybook reading will be highly correlated. Rather, these findings imply that the degree to which middle-class parents engage in storybook reading with their children is unrelated to the degree to which they teach about reading and writing words, or at least to the degree to which they report such teaching.

The finding that parents who frequently read storybooks (as indicated by their familiarity with children's literature) did not necessarily report teaching to read and print words is consistent with the findings of several reports in the literature (e.g., Fitzgerald, Spiegel, & Cunningham, 1991). It appears that many parents distinguish between two different kinds of experiences with print at home (Stipek, Milburn, Clements, & Daniels, 1992). Some experiences provide more informal or implicit interactions with print such as when parents read to the child. In this kind of experience, children are exposed to written language, but print per se is not the focus of the interactions. Other experiences provide more formal or explicit interactions with print such as when parents teach about reading and writing words and letters. These informal and formal interactions with print could happen during the same activity. For example, a parent may read a storybook and focus on the story content on one occasion but read the same book and focus on identifying letters and words on another. The distinction suggested by our findings seems to reside in the nature of the interactions with printed materials, that is, whether the focus of the exchange is on the message contained in the print or on the print itself.

Question 2: Do both storybook reading and parent teaching predict oral-language and early-literacy skills?

To investigate the possibility that reading storybooks and teaching to read and write have different patterns of association with children's oral-language and early-literacy skills and with early reading, a series of fixed-order hierarchical regressions was conducted. The number of child variables was reduced by computing factor scores for the oral-language and early-literacy measures (all loadings higher than .75).

In these regression analyses, we controlled for external variables that may affect child outcomes or home literacy experiences. We included child's age as a control variable because some of the child outcome measures were not standardized for age (e.g., listening to stories, decoding, and invented spelling). Kindergarten level indicates whether the child was in junior or senior kindergarten at the time parents completed the home literacy measures. Parental exposure to adult reading materials was included to control for the literacy level of the parent. In addition, children's analytic intelligence was included to control for individual differences in intelligence.

We controlled for children's early-literacy skills in the analysis of oral-language abilities, and for children's oral-language abilities in the analysis of early-literacy skills, and for both in the analysis of reading at the end of Grade 1. We used these controls because we expected that home literacy experiences might have an indirect link to children's oral-language and early-literacy skills. For example, literacy experiences may be directly related to oral-language skills which, in turn, may be directly related to early-literacy skills. After entering all these control variables into the regression equation, we entered the measures of home literacy experiences to afford stringent tests of the contribution of home literacy experiences to these outcome measures.

The analysis of children's literacy experiences and their oral-language skills is shown in the first column of Table 1. Storybook exposure explained a statistically significant 8% (7% in the first cohort) of the variance in the children's oral-language factor after we had controlled for children's age and kindergarten level, parent exposure to adult reading materials, children's analytic intelligence, and children's early-literacy skills. In this analysis, parent teaching behaviors did not account for a statistically significant portion of the variance in children's oral-language measures.

The analysis of children's literacy experiences and their early-literacy skills revealed a different pattern. Storybook exposure did not account for statistically significant variance in the children's early-literacy factor. In this analysis, however, the frequency of parent teaching explained a statistically significant 7% (6%) of the variance after controlling for age, parent print exposure, children's analytic intelligence, and children's oral-language skills. These results were very similar to those for the first cohort of children, as shown in Table 2. Both the pattern of significance, and the amount of variance accounted for by the home literacy factors were very similar across the two cohorts.

In sum, we found that, in middle-class homes, storybook reading predicted only oral-language skills whereas parent teaching predicted only early-literacy skills. Thus, different kinds of home literacy experiences were related to different kinds of skills. Experiences that included informal interactions with print, such as storybook reading, were associated with the development of children's oral language, and experiences that included more formal interactions with print, such as teaching about reading, were associated with the development of early-literacy skills.

The finding that storybook reading did not account for statistically significant unique variance in early-literacy skills contradicts Bus et al.'s (1995) conclusion that storybook reading accounted for 8% of the variance in children's early-literacy skills. Bus et al.'s meta-analysis, however, did not take into account related variables such as children's oral-language skills. Again, our findings highlight the importance of conducting stringent tests of the effect of storybook reading in order to build accurate models of development. Theoretical models of the influence of home literacy experiences on children's development will have applied implications for parents and teachers in that they could be used to guide the design of appropriate intervention programs for young children. For example, a program designed to enhance early-literacy skills through the use of storybooks may not be successful if it does not integrate instruction of print-specific skills during the book readings.

Question 3: Do storybook reading and parent teaching predict word reading at the end of Grade 1?

The third question addressed by the present study concerned the relation between early-literacy experiences and reading acquisition. A regression analysis was conducted to test whether literacy experiences measured early in the school year contributed to children's word reading at the end of the school year. In this analysis (see the third column of Table 1), children's oral-language and early-literacy skills accounted for 48% of the variance in word reading. Parent teaching or storybook exposure did not account for any significant additional variance in children's word reading. As shown in Table 2, these results are very similar to those obtained with the first cohort. These findings suggest that the relation between early-literacy experiences and reading acquisition in Grade 1 is indirect, such that the association is mediated through oral-language and early-literacy skills.

Conclusion

In conclusion, the results of the present research provide further support for a distinction between two different aspects of home literacy experiences with respect to the role such experiences might have in the development of oral and written language. In this middle-class sample, parents' knowledge of children's literature was related to children's oral language skills, whereas the amount of teaching about reading and writing reported by parents was related to

children's acquisition of written language skills. The pattern of relations among the language and literacy variables was very stable across two cohorts, even though the home literacy measures were obtained either at the same time as the outcome measures (Grade 1 cohort), or either one- or two-years before the outcome measures (Kindergarten cohort). The stability of the findings is heartening. One important implication of these findings is that home literacy experiences should not be considered a unitary construct. Rather, storybook reading and parent teaching may be independent experiences, with different links to early skills and, ultimately, to reading acquisition.

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Table 1

Hierarchical Regression Analyses for the Language and the Early-literacy Factors and for Reading for the Kindergarten Cohort (N = 97).

	Criterion Variables		
	Beginning of Grade 1		End of Gr. 1
	Language	Early Literacy	Reading
	ΔR^2	ΔR^2	ΔR^2
Age and Kindergarten level	.13**	.03	.03
Parent literacy level	.06**	.06*	.06*
Child analytic intelligence	.02	.02	.06*
Child oral language skills	-	.09**	.17***
Child early-literacy skills	.08**	-	.31***
Parent teaching	.03	.07**	.00
Storybook exposure	.09***	.01	.00

* $p < .05$, ** = $p < .01$, *** = $p < .001$

Notes. (a) A hyphen indicates that a measure was not entered in the equation. (b) Reading at the end of Grade 1 was measured with the Letter-Word Identification subtest and the Passage Comprehension subtest of the Woodcock-Johnson-Revised (Woodcock & Johnson, 1989).

Table 2

Hierarchical Regression Analyses from Sénéchal et al. (1998) for the Language and the Early-literacy Factors and for Reading for the Grade 1 Cohort (N = 47), for comparison.

	Criterion Variables		
	Beginning of Grade 1		End of Gr. 1
	Language	Early Literacy	Reading
	ΔR^2	ΔR^2	ΔR^2
Age	.03	.15**	.00
Parent literacy level	.07	.00	.01
Child analytic intelligence	.32**	.20**	.24**
Child oral language skills	-	.07*	
Child early-literacy skills	.07*	-	.20**
Parent teaching	.00	.06*	.00
Storybook exposure	.07*	.00	.02

*p < .05, ** = p < .01

Notes. (a) A hyphen indicates that a measure was not entered in the equation, except for the children's oral-language and early-literacy skills in Grade 1. In Sénéchal et al. these were entered as a single block. (b) Reading at the end of Grade 1 was measured with the Gates-McGinitie Reading Test (Vocabulary subtest, Level A, Form 3).

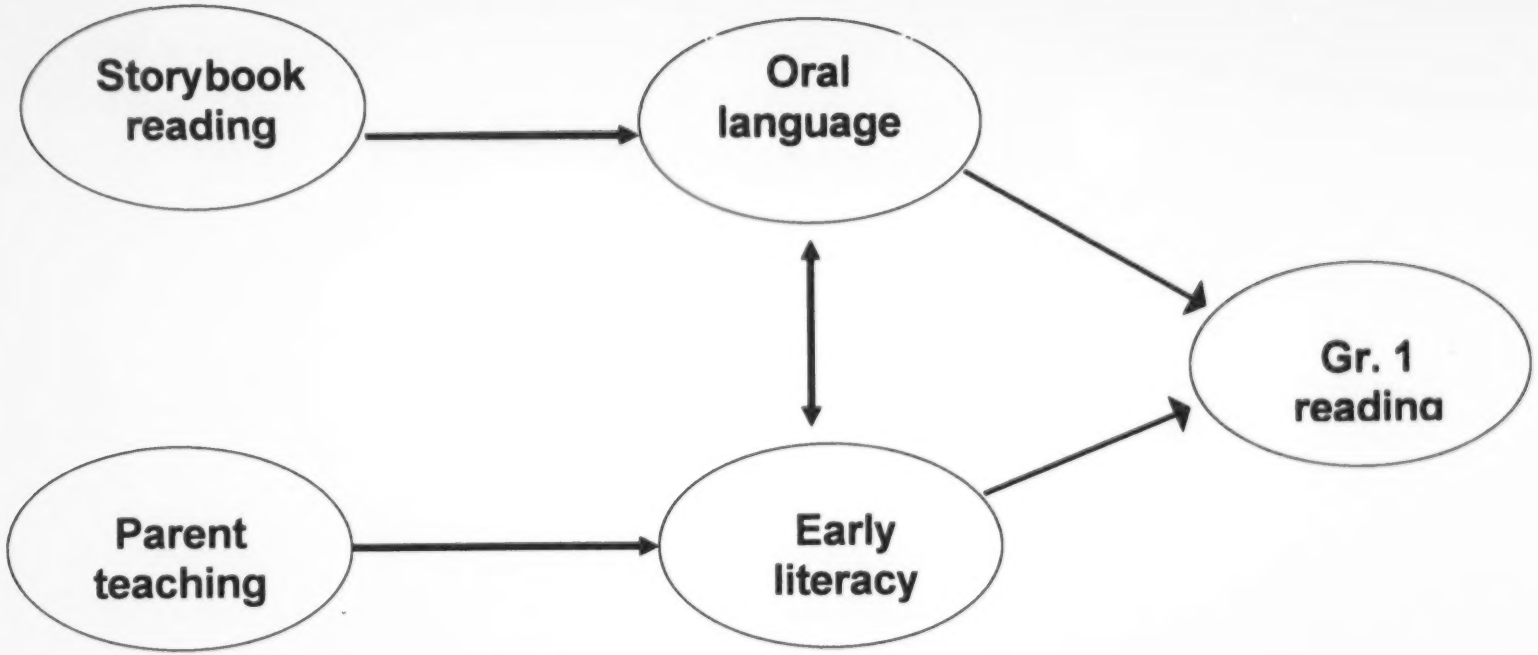

Figure 1. Hypothesized relations among home literacy experiences (storybook reading and parent teaching), early language and literacy skills (measured at the beginning of Grade 1), and reading at the end of Grade 1.